



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,590	06/16/2006	Sei-ichi Onoue	UNU94.001APC	8151
20995 7590 04/25/2008 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614				
EXAMINER				
REDDY, KARUNA P				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
04/25/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
eOAPilot@kmob.com

Office Action Summary

Application No.

10/596,590

Applicant(s)

ONOU ET AL.

Examiner

KARUNA P. REDDY

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 20-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 20-24 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/21/2008 has been entered.

Claim 1 is amended, claims 5-19 are cancelled, and claims 22-24 are added. Claims 1-4 and 20-24 are currently pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

3. Claim 23 is objected to because of the following informalities: Claim 23 (line 3) recites "alkoxysilance". Appropriate correction to the typographical error is required.

Claim Rejections - 35 USC § 103

4. Claims 1, 4 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Storow et al (US 3,069, 375) in view of Swarup et al (US 5, 506, 325).

Storow et al disclose improved aqueous dispersion acrylic copolymer coating composition (column 1, lines 14-15). The polymerization process includes forming a homogeneous dispersion comprising water and a mixture of alpha ethylenically unsaturated monomers in the presence of colloidal silica present as an alkali-stabilized silica aquasol in an amount of at least 0.1% of silica based on the weight of polymerizable monomers (column 1-17). Silica aquasols are aqueous sols of alkali-stabilized colloidal silica wherein the approximate particle size of the colloidal silica is from 5 millimicrons to 150 millimicrons (column 3, lines 4-7). Alkali present in the silica aquasol in stabilizing proportions for the colloidal silica ordinarily provides a pH from about 8 to about 10 (column 3, lines 43-46). At completion of the polymerization, resulting acidic dispersion having a pH of less than 4 is neutralized to a pH of from 5.5 to 6. The filtered aqueous dispersion is then further ammoniacally neutralized up to pH 8 (column 6, lines 46-64).

Storow et al differs slightly with respect to the pH of neutral silica sol; the process by which neutral silica sol is prepared; neutral silica sol is not colloidal silica; and neutral silica sol contains particles with different particle diameter; is silent with respect to hydrophobation of silica sol and dispersion in granular state; and electrical conductivity of silica sol.

However, with respect to pH of neutral silica sol, only deficiency of Storow et al is that it discloses a pH of from about 8 to about 10, while the present claims require a pH range of 5.0 to 7.8. It is apparent, that the instantly claimed range of 5 to 7.8 and that taught by Storow et al are so close to each other that the fact pattern is similar to the one in *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) or *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) where, despite a slight difference in the ranges, the court held that such a difference did not "render the claims patentable," or, alternatively, that "a *prima facie* case of obviousness exists where the claimed range and prior art range do not overlap, but are close enough so that one skilled in the art would have expected them to have the same properties."

With respect to the process by which neutral silica sol is prepared, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) and *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

With respect to silica sol not being colloidal silica, it is the examiner's position that silica sol by definition is colloidal silica.

With respect to neutral silica sol containing particles with different particle diameter, it is the examiner's position that Storrow et al teaches particle size of the colloidal silica from 5 millimicrons to 150 millimicrons i.e. it is a distribution of silica particles with different particle diameter.

With respect to hydrophobation and dispersion in granular state, Swarup et al teach colloidal silica which has been partially or totally surface modified through the silanization of hydroxyl groups on the silica particle, thereby rendering the surface hydrophobic (column 6, lines 1-5). The copolymer can be present with silicas like fumed silica to form a rheology control additive mixture (column 5, lines 53-55). The silica dispersed in copolymer may be added to the coating composition at any time during formulation as a rheology control additive (column 6, lines 1-16). The film forming composition comprises a resinous binder. Particularly useful resinous binders are acrylic polymers (column 6, lines 25-26). If desired, the film forming composition may contain surfactants (column 8, lines 1-3). Therefore, it would have been obvious to add colloidal silica whose surface is rendered hydrophobic, to control the rheology of coating compositions, and add resinous binder as a film forming resin that contains an additive such as surfactant to stabilize the dispersion of coating composition.

With respect to electrical conductivity, a value of 1 mS/cm or less is interpreted as zero electrical conductivity.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Storrow et al (US 3,069, 375) in view of Swarup et al (US 5, 506, 325) as applied to claim 1 above, and further in view of Kano (US 5, 891, 948).

The discussion with respect to Storrow et al in view of Swarup in paragraph 4 above is incorporated here by reference.

Storrow et al in view of Swarup is silent with respect to aggregate; size of the aggregate; and its amount relative to the resin emulsion.

However, Kano teaches coating material comprising acrylic resin latex (column 7, lines 18-19) to which is added natural aggregates such as lime rock, silica sand and mica classified by the particle diameter (column 7, lines 25-28) to obtain a finish very close to a pattern of natural granite (column 4, lines 41-43). The natural or artificial multi-color aggregates have a particle diameter of 5 mm or less (column 1, lines 25-28). See table (column 10, lines 40-62) for wt% of resin and aggregates in the coating composition. Therefore, it would have been obvious to one skilled in the art at the time invention was made to add aggregates in the coating composition of Kano, to the coating composition of Storrow et al in view of Swarup et al, to obtain a finish very close to natural granite.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Storrow et al (US 3,069, 375) in view of Swarup et al (US 5, 506, 325) as applied to claim

1 above, and further in view of Kano (US 5, 891, 948) and Gagliardi et al (US 5, 961, 674).

The discussion with respect to Storrow et al in view of Swarup et al in paragraph 4 above is incorporated here by reference. Furthermore, attention is drawn to Swarup et al (column 7, lines 55-67) wherein it is disclosed that the colored film-forming compositions may contain color pigments conventionally used in surface coatings. The pigment is incorporated in amounts of about 1 to 80 percent by weight based on coating solids.

Storrow et al in view of Swarup et al is silent with reference to component D, E, their amounts in relation to solids content of the resin emulsion.

However, Storrow et al contemplate addition of fillers, other adjuvants (column 8, line 28) and reads on the extender pigment and aggregates respectively of present claims.

Gagliardi et al teach addition of filler in an amount of 40 to 70% to increase toughness and hardness of a binder used for coating and/or reduce the cost of finished article (column 1, lines 60-65).

Kano teaches coating material comprising acrylic resin latex (column 7, lines 18-19) to which is added natural aggregates such as lime rock, silica sand and mica classified by the particle diameter (column 7, lines 25-28) to obtain a finish very close to a pattern of natural granite (column 4, lines 41-43). The natural or artificial multi-color aggregates have a particle diameter of 5 mm or less (column 1, lines 25-28). See table (column 10, lines 40-62) for wt% of resin

and aggregates in the coating composition. Therefore, it would have been obvious to one skilled in the art at the time invention was made to add the aggregates of Kano, and filler i.e. extender pigment of Gagliardi, in the above mentioned proportions, to the composition of Storrow et al in view of Swarup et al and obtain a coating which has a finish close to natural granites and exhibits increased hardness and toughness.

7. Claims 1 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Storrow et al (US 3,069, 375) in view of Inagaki et al (US 4, 427, 823).

Storrow et al disclose improved aqueous dispersion acrylic copolymer coating composition (column 1, lines 14-15). The polymerization process includes forming a homogeneous dispersion comprising water and a mixture of alpha ethylenically unsaturated monomers in the presence of colloidal silica present as an alkali-stabilized silica aquasol in an amount of at least 0.1% of silica based on the weight of polymerizable monomers (column 1-17). Silica aquasols are aqueous sols of alkali-stabilized colloidal silica wherein the approximate particle size of the colloidal silica is from 5 millimicrons to 150 millimicrons (column 3, lines 4-7). Alkali present in the silica aquasol in stabilizing proportions for the colloidal silica ordinarily provides a pH from about 8 to about 10 (column 3, lines 43-46). At completion of the polymerization, resulting acidic dispersion having a pH of less than 4 is neutralized to a pH of from 5.5 to 6. The filtered aqueous dispersion is then further ammoniacally neutralized up to pH 8 (column 6, lines 46-64).

Storow et al differs slightly with respect to the pH of neutral silica sol; the process by which neutral silica sol is prepared; neutral silica sol is not colloidal silica; neutral silica sol contains particles with different particle diameter; and silent with respect to hydrophobation of silica sol.

However, with respect to pH of neutral silica sol, only deficiency of Storow et al is that it discloses a pH of from about 8 to about 10, while the present claims require a pH range of 5.0 to 7.8. It is apparent, that the instantly claimed range of 5 to 7.8 and that taught by Storow et al are so close to each other that the fact pattern is similar to the one in *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) or *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) where, despite a slight difference in the ranges, the court held that such a difference did not "render the claims patentable," or, alternatively, that "a *prima facie* case of obviousness exists where the claimed range and prior art range do not overlap, but are close enough so that one skilled in the art would have expected them to have the same properties."

With respect to the process by which neutral silica sol is prepared, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a

different process." See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) and *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

With respect to silica sol not being colloidal silica, it is the examiner's position that silica sol by definition is colloidal silica.

With respect to neutral silica sol containing particles with different particle diameter, it is the examiner's position that Storow et al teaches particle size of the colloidal silica from 5 millimicrons to 150 millimicrons i.e. it is a distribution of silica particles with different particle diameter.

With respect to hydrophobation, Inagaki et al teach a coating composition comprising acrylic prepolymer and an inorganic solid filler. The cured filled coating composition has outstanding transparency, outstanding properties such as hardness, scratch resistance, weatherability, adhesion to substrates etc (column 1, lines 13-20). A composition comprising ultrafine inorganic solid filler whose particle diameter is at least 1 millimicron but less than 1 micron possesses the aforesaid excellent properties (column 3, lines 5-17). These properties are not obtained by conventional unfilled or filled compositions of acrylates (column 3, lines 22-25). Especially preferred are those in which at least 5 mole% of the silanol groups on the surface is either esterified with a C₁-C₆ alcohol, modified with a silane coupler of the formula (CH₃O)₃SiR in which R is C₁-C₅ alkyl group or those in which silica is coated with a surface active agent such as polyoxyethylene alkylate. In use, these SiO₂-type fillers are conveniently

dispersed in a polar solvent such as water (column 8, lines 15-28). While complex formation of polyoxyethylene with silica is not taught, it is the examiner's position that the oxygen atom of polyoxyethylene binds with hydroxyl group of the silanol via hydrogen bonding to form a complex. Therefore, it would have been obvious to treat the surface of silica sol with alcohols, alkoxy silanes or polyoxyethylene alkylate, for above mentioned advantages.

With respect to electrical conductivity, a value of 1 mS/cm or less is interpreted as zero electrical conductivity.

8. Claim 1, 4 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberger et al (US 6, 008, 291) and Swarup et al (US 5, 506, 325).

Weinberger et al disclose viscosity stabilized aqueous polyester dispersions comprising polyester resin and silica in an amount such that the mass of SiO₂ is from 0.1 to 50% of the mass of polyester resin (abstract). The polyester resin dispersions generally have a pH of more than 7, preferably from 8 to 10 (column 2, lines 18-20). The content of silicon dioxide can be introduced by adding aqueous silica dispersions to aqueous dispersions of polyester (column 3, lines 7-9). The aqueous silica dispersion can comprise a product which is formed by hydrolysis of silicon compounds (column 4, lines 33-37). Preference is given to those aqueous silica dispersion which have a pH of from about 7.0 to about 14.0 (column 4, lines 57-60). The average particle size of the silica in dispersions is suitably from 5 to 130 nm (column 4, lines 52-54). The binders

prepared using polyester dispersions viscosity-stabilized find use in compositions for coating materials (column 7, lines 60-62).

Weinberger et al is silent with respect to hydrophobation and dispersion in granular state; neutral silica sol containing two or more kinds of neutral silica sol different in average primary particle diameter.

However, Swarup et al teach colloidal silica which has been partially or totally surface modified through the silanization of hydroxyl groups on the silica particle, thereby rendering the surface hydrophobic. The copolymer can be present with silicas like fumed silica to form a rheology control additive mixture (column 5, lines 53-55). The silica dispersed in copolymer may be added to the coating composition at any time during formulation as a rheology control additive (column 6, lines 1-16). The film forming composition comprises a resinous binder. Particularly useful resinous binders are acrylic polymers (column 6, lines 25-26). If desired, the film forming composition may contain surfactants (column 8, lines 1-3). Therefore, it would have been obvious to add colloidal silica whose surface is rendered hydrophobic, to control the rheology of coating compositions, and add resinous binder as a film forming resin that contains an additive such as surfactant to stabilize the dispersion of coating composition.

With respect to silica sol containing two or more kinds of neutral silica sol different in average particle diameter, Weinberger et al teach that the average particle size of silica is suitably from 5 to 130 nm. It is the examiner's position that, it is a distribution of silica particles with different particle diameter.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberger et al (US 6, 008, 291) and Swarup et al (US 5, 506, 325) as applied to claim 1 above, and further in view of Kano (US 5, 891, 948).

The discussion with respect to Weinberger et al in view of Swarup et al in paragraph 8 above is incorporated here by reference.

Weinberger et al in view of Swarup is silent with respect to aggregate; size of the aggregate; and its amount relative to the resin emulsion.

However, Kano teaches coating material comprising acrylic resin latex (column 7, lines 18-19) to which is added natural aggregates such as lime rock, silica sand and mica classified by the particle diameter (column 7, lines 25-28) to obtain a finish very close to a pattern of natural granite (column 4, lines 41-43). The natural or artificial multi-color aggregates have a particle diameter of 5 mm or less (column 1, lines 25-28). See table (column 10, lines 40-62) for wt% of resin and aggregates in the coating composition. Therefore, it would have been obvious to one skilled in the art at the time invention was made to add aggregates in the coating composition of Kano, to the coating composition of Weinberger et al in view of Swarup et al, to obtain a finish very close to natural granite.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weinberger et al (US 6, 008, 291) and Swarup et al (US 5, 506, 325) as applied

to claim 1 above, and further in view of Kano (US 5, 891, 948) and Gagliardi et al (US 5, 961, 674).

The discussion with respect to Weinberger et al in view of Swarup et al in paragraph 8 above is incorporated here by reference. Furthermore, attention is drawn to Swarup et al (column 7, lines 55-67) wherein it is disclosed that the colored film-forming compositions may contain color pigments conventionally used in surface coatings. The pigment is incorporated in amounts of about 1 to 80 percent by weight based on coating solids.

Weinberger et al in view of Swarup et al is silent with reference to component D, E, their amounts in relation to solids content of the resin emulsion.

However, Storrow et al contemplate addition of fillers, other adjuvants (column 8, line 28) and reads on the extender pigment and aggregates respectively of present claims.

Gagliardi et al teach addition of filler in an amount of 40 to 70% to increase toughness and hardness of a binder used for coating and/or reduce the cost of finished article (column 1, lines 60-65).

Kano teaches coating material comprising acrylic resin latex (column 7, lines 18-19) to which is added natural aggregates such as lime rock, silica sand and mica classified by the particle diameter (column 7, lines 25-28) to obtain a finish very close to a pattern of natural granite (column 4, lines 41-43). The natural or artificial multi-color aggregates have a particle diameter of 5 mm or less (column 1, lines 25-28). See table (column 10, lines 40-62) for wt% of resin

and aggregates in the coating composition. Therefore, it would have been obvious to one skilled in the art at the time invention was made to add the aggregates of Kano, and filler i.e. extender pigment of Gagliardi, in the above mentioned proportions, to the composition of Weinberger et al in view of Swarup et al and obtain a colored coating which has a finish close to natural granites and exhibits increased hardness and toughness.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARUNA P. REDDY whose telephone number is (571)272-6566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1796

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karuna P Reddy/
Examiner, Art Unit 1796

/David Wu/
Supervisory Patent Examiner, Art Unit 1796